

# Proceedings of the Iowa Academy of Science

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## Proceedings of the Twenty-Ninth Annual Session of the Iowa Academy of Science: Staff & Committee Reports; Program

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## Proceedings of the Twenty-Ninth Annual Session of the Iowa Academy of Science

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### REPORT OF THE SECRETARY.

#### *Fellows and Members of the Iowa Academy of Science:*

During the past year a number of problems have suggested themselves, which it seems fitting to discuss briefly.

The membership of the Academy has grown so much in recent years that it is now impossible to furnish all members with cloth bound copies of the Proceedings. It has proven a hard task this year to make 200 volumes supply 280 persons. As soon as its finances will permit the Academy should provide for a larger number of copies to be bound in buckram. This number should be 300 at least, in place of the present 200.

In his last report to the Academy my predecessor, Professor Ross, suggested that original workers in science from other states when chosen as corresponding fellows of the Iowa Academy "are really elected to honorary fellowships, the honor, sometimes perchance, being to the Academy rather than to the one so elected". The constitution provides that in addition to those scientists who are elected from other states as corresponding fellows, active fellows removing to other states from this may be classed as corresponding fellows. The procedure of the Academy in regard to this latter point evidently has not been consistent and some fellows have been transferred to the correspondents' list while others have not. Moreover there are three persons in the list of corresponding fellows whose residence is given as Iowa. I would suggest that this list be carefully revised by a committee well informed and with a definite plan in mind; and that the clause of the constitution providing for transferring of fellows from the active to the corresponding list be *very rarely* applied. If the intention of the founders of the Academy was to make the class of corresponding fellows an honorary one that purpose should be conserved by a careful

guarding of the list so that it shall really stand for what it is supposed to represent. The suggestion has been made, and I am glad to endorse it here, that Past Presidents of the Academy, should they remove from the state, be transferred to the corresponding fellows' class, in recognition of their service to the Academy.

The committee on Secretary's report at the last meeting submitted resolutions calling for the discontinuance of the present annual fee for corresponding fellows and also for the raising of the present life membership fee from \$7.00 to \$15.00. Although the report was adopted the required amendments to the constitution have not been submitted.

The question of giving prizes for meritorious work by members of the Academy has been raised at different times. Would it not be desirable to carry into execution some plan for the recognition by the Academy of the additions to knowledge made by its members? It may not be advisable or feasible to assist in the prosecution of research, but it may be quite possible to reward it when completed.

The secretary at times has calls for a list of the papers published by the Academy. These calls come from libraries and from scientists over the nation. There is no such list, so far as I am aware, but it would be of great convenience. If it is your desire I will be glad to prepare an index of the published volumes, this list to be of such character and published in such form as you shall decide.

In reading over the constitution I am impressed by the absence of any clauses defining the status of that class of members known as associates. They seem to be assured of no rights, privileges or immunities except the right of paying one dollar each year. Would it not be well to specify clearly the duties and privileges of each class of members? And this leads to the further suggestion that the constitution makes no provision for the adoption of any by-laws. However, I shall abstain from making further recommendations at this time.

I am glad to take this opportunity of thanking the members of the Academy who published papers in Volume XXI for their assistance to the secretary in editing and proof reading the volume. Almost without exception proof was returned promptly by authors and a very gratifying spirit of helpfulness was manifested. Still it may not be amiss to mention a few points

which not only will lighten the labors of the secretary, if observed, but, what is of more consequence, will increase the value of the Proceedings. It ought not to be needful to say here that the English of our publications should be of a high order. But nine years experience in similar work gives me grounds for saying that such an admonition is not needless, even among scientific men, where accuracy is the watchword. I have wished that it were possible to have a training school where investigators might be given instruction in the use of model English phraseology; uniformity in the use of standard expressions, abbreviations, punctuation, and other helps to intelligibility; the proper structure of the sentence; the use and misuse of the paragraph; typewriting and the appearance of the finished paper; and other points which might suggest themselves. I have had occasion often to wish for myself such instruction. But at least if we cannot attend such a training school, we can read our productions to our wives. They are likely to be good critics, and not too lenient. This will outline in brief what I wish for every member of our Academy who aspires to bring to the attention of the reading public his own accomplishment in this inner world of research of which we are each a part. Surely the children of our intellectual life are worthy the best clothing we can provide, and the criticism so often made of technical experts—that they can not prepare a creditable report—ought not to hold against scientific authors.

Respectfully submitted,

JAMES H. LEES,

*Secretary.*

## TREASURER'S REPORT.

### RECEIPTS.

Cash on hand, April 25, 1914.....	\$ 4.97
Refund from L. S. Ross, due to excess payment.....	10.45
Dues and initiation fees from members and fellows.....	187.00
Life member dues.....	14.00
Sale of proceedings.....	4.25
Exchange not used by the bank.....	.20
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	\$220.87

### EXPENDITURES.

Expense of lecturer, 28th meeting.....	\$ 28.01
Postage and stenographic work for treasurer.....	11.20

Programs, letterheads, and postage for secretary.....	12.64
Letterheads, receipt blanks, and supplies for treasurer.....	7.25
Printing and binding expense, extra pp. Volume XX.....	144.12
Wrapping and sending out Volume XX.....	10.00
Balance on hand, May 1, 1915.....	7.65
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	\$220.87

A. O. THOMAS,  
*Treasurer.*

## REPORT OF COMMITTEE ON SECRETARY'S REPORT.

Your committee to whom was referred the secretary's report beg leave to recommend as follows:

1. In regard to the binding of the Proceedings in buckram, three hundred copies should be bound in buckram. This is made possible because the State has assumed some of the burden of the Academy so far as publication is concerned.

2. It is the opinion of your committee that honorary membership should be awarded only to such scientists as have rendered science some distinguished service, and then this honor should be awarded only on the recommendation of a committee report presented to the Academy at one of its regular sessions. With reference to the transfer of fellows from active to the corresponding lists, this to include also the past presidents who have moved from the State, this article or section of the constitution should be revised in such a way as to safeguard the principles for which the Academy stands. It might be well to have this change from active to corresponding membership apply only to persons who have been members for ten years.

3. The Academy should adopt some plan as soon as practicable to give a diploma or some other suitable recognition for meritorious scientific work done in the State. This might be an annual event, some such plan as the following:

The Iowa Academy, etc., hereby awards this diploma, etc., for distinguished work done in chemistry.

.....  
President of the Iowa Academy of Science.

.....  
Secretary of the Iowa Academy of Science.

4. It would seem desirable to publish a complete index to the Academy when twenty-five volumes are completed.

5. In regard to associates, it was the original idea that this class of members are preparing to become fellows.

They should have the right to vote on all Academy matters as well as to present papers. They have frequently presented papers. It might be well for a committee to recommend suggestive changes in the constitution as well as the adoption of by-laws.

G. W. STEWART,

L. H. PAMMEL,

B. H. BAILEY.

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The membership committee, Messrs. Lees, Thomas and Kenoyer, submitted the following names. The report was adopted and the persons named were declared elected.

Elected Fellows—G. W. Stookey, Cedar Rapids; Arthur W. Hixson, Iowa City; George A. Chaney, Ames; Dr. A. L. Grover, Iowa City.

Transferred from Associates to Fellows—Morris M. Leighton, Rosenwald Hall, University of Chicago; Miss Alison E. Aitchison, Cedar Falls; T. C. Stephens, Sioux City.

Elected as Associates—Eric Eastman, Ames; Wm. Diehl, Ames; Dr. E. Curran, Cedar Rapids; G. V. Emery, Ames; Rev. H. K. Fakkenberg, Davenport; Dr. H. E. Ewing, Ames; H. A. Scullen, Ames; J. V. Howell, Iowa City; M. Louisa Sargent, Grinnell; W. E. Tisdale, Iowa City; L. Oneley, Fayette; P. T. McNally, Iowa City; C. J. Knock, Iowa City; Frank A. Thone, Des Moines; H. H. Gould, Iowa City; J. W. Doolittle, Iowa City; J. L. Seal, Ames; Victor A. Hoersch, Iowa City; Samuel Geiser, Independence; Thesle T. Job, Iowa City; Carl Utz, Iowa City; Siegel Overholt, Iowa City; L. V. Fees, Iowa City; Dr. Fanny C. Gates, Grinnell; Dr. W. S. Elliott, Eldora; O. E. Reynolds, Iowa Falls; C. F. Reed, Lamoni; O. B. Overn, Decorah; J. E. Fulcher, Des Moines; Dr. Orrin H. Smith, Mount Vernon; Dr. C. S. Woods, Iowa City; Paul S. Helmick, Iowa City; Miss Helen Moon, Iowa City; Wm. J. Rusk, Grinnell; E. L. Palmer, Cedar Falls; Daniel M. Brumfiel, Iowa City; Miss Jessie P. Hastings, Iowa City; J. J. Hinman, Iowa City.

# OFFICERS OF THE ACADEMY FOR 1915-1916.

President.....H. M. Kelly, Mount Vernon  
 First Vice President.....G. W. Stewart, Iowa City  
 Second Vice President.....Charles R. Keyes, Des Moines  
 Secretary.....James H. Lees, Des Moines  
 Treasurer.....A. O. Thomas, Iowa City  
 Elective Members of the Executive Committee:  
     E. J. Cable, Cedar Falls; B. H. Bailey, Cedar Rapids; L.  
     B. Spinney, Ames.

## LIST OF MEMBERS AND VISITORS REGISTERED AT THE IOWA CITY MEETING.

Alison E. Aitchison, Cedar Falls, Geography; Henry Albert, Iowa City, Medicine and Bacteriology; Frank F. Almy, Grinnell, Physics; M. F. Arey, Cedar Falls, Zoology; C. G. Armstrong, Ames, Chemistry; B. H. Bailey, Cedar Rapids, Zoology; D. E. Bailey, Ames, Chemist; J. A. Baker, Indianola, Chemistry; R. P. Baker, Iowa City, Mathematics; A. L. Bakke, Ames, Botany; Clifford L. Bartlett, Iowa City, Bacteriology and Pathology; C. O. Bates, Cedar Rapids, Chemistry; H. F. Bauer, Cedar Rapids; L. Begeman, Cedar Falls, Physics; Friederich Berninghausen, Eldora, General; Geo. H. Berry, Cedar Rapids, Natural Science, Chemistry; P. L. Blumenthal, Ames, Chemist; P. A. Bond, Cedar Falls, Chemistry; David H. Boot, Iowa City, Botany; F. C. Brown, Iowa City, Physics; P. E. Brown, Ames, Soils; D. M. Brumfiel, Iowa City, Animal Biology; J. H. Buchanan, Ames, Chemist; E. J. Cable, Cedar Falls, Geography; C. L. Coffin, Oskaloosa, Physics; R. M. Cole, Ames, Chemist; Henry S. Conard, Grinnell, Botany; Ruth H. Cotten, Iowa City, Zoology; John S. Coye, Ames, Chemistry; Mae Cresswell, Cedar Falls, Teaching of Science; W. E. Davis, Cedar Falls, Agriculture; E. O. Dieterich, Iowa City, Physics; H. R. Dill, Iowa City, Zoology; L. E. Dodd, Iowa City, Physics; H. L. Dodge, Iowa City, Physics; J. W. Doolittle, Iowa City, Physics; A. W. Dox, Ames, Chemistry; R. W. Getchell, Cedar Falls, Chemistry; C. E. Gillette, Mount Vernon, Chemistry; Harry H. Gould, Iowa City, Psychology; A. L. Grover, Iowa City, Medicine; A. C. Grubb, Cedar Falls, Physics; J. E. Guthrie, Ames, Zoology; J. P. Hastings, Iowa City, Physics and Chemistry; R. W. Henderson, Iowa City, Biology; W. S. Hendrixson, Grinnell, Chem-

## ATTENDANCE LIST

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istry; S. F. Hersey, Cedar Falls, Physics; F. G. Higbee, Iowa City, Engineering; Ruth Higley, Grinnell, Zoology; J. J. Hinman, Jr., Iowa City, Chemistry; A. W. Hixson, Iowa City, Chemistry; Victor A. Hoersch, Davenport, Physics; Gilbert L. Houser, Iowa City, Animal Biology; Jessie V. Howell, Iowa City, Geology; E. A. Jenner, Indianola, Biology; T. T. Job, Iowa City, Biology; Axel Justesen, Cedar Falls, Geology; W. J. Karslake, Iowa City, Chemistry; G. F. Kay, Iowa City, Geology; Harry M. Kelly, Mount Vernon, Zoology and Botany; L. A. Kenoyer, Toledo, Biology; C. R. Keyes, Des Moines, Geology; C. N. Kinney, Des Moines, Chemistry; H. B. Kinney, Ames, Soil; Nicholas Knight, Mount Vernon, Chemistry; Carl J. Knock, Iowa City, Psychology; William Kunerth, Ames, Physics; S. B. Kuzirian, Ames; A. R. Lauch, Ames, Chemist; James H. Lees, Des Moines, Geology; Leslie W. Lyon, Burlington, Physics and Chemistry; P. T. McNally, Dunlap, Physics; R. Monroe McKenzie, Fairfield, Chemistry and Physics; Helen Moon, Iowa City, Mathematics; C. C. Nutting, Iowa City, Zoology; Lawrence Oncley, Fayette, Physics; E. L. Palmer, Cedar Falls, Botany; L. H. Pammel, Ames, Botany; J. N. Pearce, Iowa City, Chemistry; F. C. Pellett, Atlantic, Natural Science; J. O. Perrine, Cedar Falls, Physics; H. J. Plagge, Ames, Physics; G. P. Plaisance, Ames, Chemist; J. C. Pomeroy, Ames, Physics; O. B. Reed, Cedar Falls, Chemistry; R. P. Renshaw; E. W. Rockwood, Iowa City, Chemistry; L. S. Ross, Des Moines, Zoology; W. J. Rush, Grinnell, Mathematics; Louisa Sargent, Grinnell, Botany; C. E. Seashore, Iowa City, Psychology; F. H. Schoultz, Ames, Chemistry; B. Shimek, Iowa City, Botany; Ella Shimek, Iowa City, Botany; W. R. Shipton, Iowa City, Geology; L. P. Sieg, Iowa City, Physics; Orrin H. Smith, Mount Vernon, Physics; L. B. Spinney, Ames, Physics; J. L. St. John, Cedar Falls, Chemistry; T. C. Stephens, Sioux City, Biology; G. W. Stewart, Iowa City, Physics; Harold Stiles, Ames, Physics; Dayton Stoner, Iowa City, Zoology; F. A. Stromsten, Iowa City, Zoology; Louis A. Test, Ames, Chemistry; A. O. Thomas, Iowa City, Geology; F. Thone, Grinnell, Botany; John L. Tilton, Indianola, Geology; W. E. Tisdale, Iowa City, Physics; C. M. Traver, Muscatine, Physics; A. C. Trowbridge, Iowa City, Geology; T. F. Vance, Ames, Psychology; Flora Waterbury, Iowa City, Zoology; R. L. Webster, Ames, Zoology; O. M. Weigle, Cedar Falls, Chemistry; LeRoy D. Weld, Cedar Rapids, Physics;



Vern E. Whitney, Ames, Chemistry; Samuel Wifvat, Des Moines, Physics; Louisa Wilken, Iowa City, Medicine; Mabel C. Williams, Iowa City, Psychology; Guy West Wilson, Iowa City, Botany; C. S. Woods, Iowa City, Medicine and Hygiene; R. B. Wylie, Iowa City, Botany.

## PROGRAM.

The Academy held its meetings in Room 301, Hall of Physics, beginning at 1:30 p. m., Friday, April 30, 1915. Academy headquarters were the Electrical Laboratory, first floor, Hall of Physics. The Iowa Section, American Chemical Society, had headquarters in the Hall of Physics, and met Saturday forenoon.

Professor Ellery W. Davis of the Department of Mathematics, University of Nebraska, gave the Annual Address at 8:15 p. m., Friday, on the subject "Uncertainties." The lecture was given in the Auditorium, Hall of Natural Science.

Dean Stanton Ford of the University of Minnesota lectured on "The Present Situation of University Research in this Country" in the Auditorium of the Hall of Liberal Arts, Friday at 7:30 p. m.

## TITLES OF PAPERS RECEIVED.

An Anomalous Hickory-nut.....	} Guy West Wilson
An Exobasidium on Armillaria.....	
The Role of Soil Fungi.....	
The Forest and Shrub Flora of Western Iowa.....	} L. H. Pammel, G. B. MacDonald and H. B. Clark
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The Weed Flora of the Lake Superior Region Compared with the Weed Flora of Iowa.....	} L. H. Pammel
Some Comparative Germination Tests of Sweet Clover.....	
The Flora of the Ledges, Boone County, Iowa.....	} Wm. Diehl, Presented by L. H. Pammel
.....	
.....	
Flora of the Rainy River Region, Minnesota.....	} Harriette S. Kellogg
Economic Seaweeds of Alaska.....	
A Hybrid Ragweed.....	} Robert B. Wylie
The Distribution of Forest and Prairie in the Lake Region of Iowa.....	
The Lichen Flora of the Prairies of Northwestern Iowa.....	} B. Shimek
Early Iowa Locality Records.....	
The Ecological Histology of Certain Prairie Plants.....	} Ella Shimek
The Index of Foliar Transforming Power as an Indicator of Permanent Wilting of Plants.....	
Preliminary Notes on Nectar Production.....	} L. A. Kenoyer
Flora of the East Slope of the Cascade Mountains in Crook County, Oregon.....	
Pioneer Plants of a New Levee.....	} Morton E. Peck
.....	
.....	} Frank A. Thone, Introduced by H. S. Conard
.....	

## PROGRAM

9

- A New Apparatus for Regulating Temperatures  
for Work in Polarimetry and Refractivity... } J. N. Pearce
- Electrical Conductivity of Solutions of Silver Ni-  
trate in Water and Pyridine and in their  
Binary Mixtures. (Preliminary Paper.).... }
- A Convenient Standard Cell: (Cu—Hg)—CuSO<sub>4</sub>—Hg<sub>2</sub>SO<sub>4</sub>—Hg.  
..... Dieu Ung Huong and J. N. Pearce
- Some Derivatives of 4-nitro-5-methyl-2-sulphobenzoic Acid..... } Wm. J. Karslake and P. A. Bond
- The Anston Stone from Kiveton Park, England }  
An Important Building Stone from the Vosges } Nicholas Knight
- The Transfusion of Double Salts Through Porous  
Partitions ..... }
- Comparison of Some Standards in Acidimetry and Alkalimetry  
..... W. S. Hendrixson
- Studies on Barium Sulfate .....  
..... P. L. Bluementhal and S. C. Gurnsey, Read by Dr. Bluementhal
- A Comparison of Some Kjeldahl Methods for Nitrogen Deter-  
mination .....  
..... P. L. Bluementhal and G. P. Plaisance, Read by Mr. Plaisance
- The Ste. Genevieve Formation and Its Stratigraphic Relations in  
Southeastern Iowa..... Stuart Weller and Francis M. Van Tuyl
- The Occurrence and Origin of the Iron Ores of Iron Hill, Near  
Waukon, Iowa..... Jesse V. Howell, Introduced by G. F. Kay
- The Extension of the Wisconsin Drift Southwest  
from Des Moines ..... } John L. Tilton
- The Age of the Terrace Near Des Moines and  
Indianola, Iowa..... }
- The First Coal-Washing Plant in Iowa..... } George F. Kay
- The Mineral Industry in Iowa During the Past  
Decade ..... }
- The Occurrence of Barite in the Lead and Zinc Districts of Iowa,  
Illinois and Wisconsin..... W. D. Shipton
- A Remarkable Prairie Synclineorium..... }  
Foundations of Exact Geologic Correlation.... } Charles Keyes
- Contraposed Shore-Lines on the Straits of Juan  
du Fuca ..... }
- Progress Report of Physiographic Work in the Driftless Area  
..... A. C. Trowbridge
- The Paleontology and Stratigraphy of the Upper Carboniferous  
of Iowa..... George L. Smith
- The Loess of Peczel, Hungary..... B. Shimek
- The Phenomenon of Leaching in Pleistocene Formations..... } M. M. Leighton
- Some Unique Niagaran Cephalopods..... }  
A New Crinoid Fauna from Monticello, Iowa.... } A. O. Thomas
- High Level Gravels in Floyd County, Iowa..... }
- The Inheritance of Syndactylism..... Henry Albert
- The Effect of Alcohol on the Liver as Shown Experimentally.....  
..... A. L. Grover, Introduced by Henry Albert
- The Effect of Change of Lamp Voltage on Vision..... William Kuerth
- A Simple Device for Demonstrating the Tempered Scale... L. B. Spinney
- An Attempt to Detect a Change in the Heat Conductivity of  
Selenium Crystals Under the Influence of Light..... L. P. Sieg
- Notes on Certain Elastic Peculiarities of Phosphor Bronze Wires  
..... L. P. Sieg and A. J. Oehler
- On the Wave-Length-Sensibility Curves of Isolated Crystals of  
Selenium Between Wave Lengths 2000 A. U. and 4500 A. U.  
..... F. C. Brown and L. P. Sieg

A Design for Electrical Regulation of High Temperature Ovens .....	
Notes on Production, and Some Electrical Properties of Tellurium Crystals.....	W. E. Tisdale
A Resonance Method for Measuring the Phase Difference of Condensers .....	H. L. Dodge
The Theory of Binaural Beats.—An Experimental Contribution.....	G. W. Stewart and Harold Stiles
Experimental Evidence of Absence of Liberation and Absorption of Electrons in a Change from the Electrically Conducting to the Electrically Non-Conducting State.....	L. E. Dodd
The Crystal Optiphone in its Adaptation to Enable the Blind to Read the Printed Page through Ear Impressions.....	F. C. Brown
The Variation, with Temperature, of the Light-Sensitiveness of Selenium Crystals.....	Kathryn J. Dieterich
The Wave-Length Sensibility Curves of Selenium Blocks.....	E. O. Dieterich
Psychology Applied to the Improvement of Control of the Pitch of the Voice in Singing..	Carl J. Knock, Introduced by C. E. Seashore
Psychology Applied to Measurement of Merit in Advertisements..	Harry H. Gould, Introduced by C. E. Seashore
The Psychogram in Vocational Guidance.....	C. E. Seashore
A Bacteriological Study of the Wells of Toledo, Iowa.....	W. H. Lauderdale and L. A. Kenoyer
Preliminary Notes on the Animal Ecology of Johnson County.....	D. M. Brumfiel, Introduced by Gilbert L. Houser
Anatomy of the Lymphatic System in the Adult Rat.....	Thesle T. Job, Introduced by Gilbert L. Houser
Notes on the Development of the Lymphatic System of Turtles....	Frank A. Stromsten
The Present Status of the Hessian Fly in Iowa.....	R. L. Webster
Tracheal Capillaries of the Grasshopper.....	L. S. Ross
The Inheritance of Fertility in Swine.....	Edward N. Wentworth
Is the Appetite of Swine a Reliable Indication of Physiological Needs?.....	John M. Evvard
Notes on Iowa Pentatomoidea.....	Dayton Stoner
The Crow.....	Fred Berninghausen
On Snakes "Swallowing" Their Young.....	E. D. Ball
Notes on the Distribution of the Prairie Spotted Skunk in Iowa..	B. H. Bailey
The Building and Function of the College Museum.....	B. H. Bailey
Ictinia Mississippensis in Nebraska.....	B. H. Bailey
(Published in full in the Wilson Bulletin of Oberlin College.)	